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V.S.

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/238,851 01/27/99 PETERS

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EXAMINER

WEBB, G

ART UNIT	PAPER NUMBER
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1751

DATE MAILED:

03/14/00

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/238,851

Applicant(s)
Ward et al

Examiner
Gregory Webb

Group Art Unit
1751



☒ Responsive to communication(s) filed on Feb 22, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-17 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-17 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 3

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Response to Amendment

1. The following action is in response to the pre-amendment filed 2/22/1999.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4, 7, and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear whether the polar solvent is a combination of solvents or a solvent selected from the group listed. It is suggested that the applicant use Markush language to clearly define the polar solvent (i.e. wherein the polar solvent is selected from the group consisting of monoethanolamine, etc..)
4. Claims 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The applicant states a method for removing "photoresist or residue" and then states a "period sufficient to remove the coating". It is not clear what the "coating" is referring to. Is this the "photoresist or residue?" Furthermore, it is not clear how long such a process would take.

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Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3, 5, 8, 10-12, 14, 15, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Torii et al (US 5,972,862).

7. Torii et al teach compositions for cleaning semiconductor surfaces. In example 4, Torii et al teach a composition containing 10 weight percent ammonium fluoride (fluoride compound and buffering agent), 0.1 weight percent acetic acid (acid), and 45 weight percent dimethyl formamide (organic solvent). Noting that this composition is free of glycols (see col. 12, lines 50-65). Torii et al further teach the use of these compositions for cleaning residue from a substrate at a temperature of 23°C (see col. 12, lines 8-18). The results of these experiments demonstrate this time to be sufficient for complete removal of the residue (see col. 13, lines 1-28).

8. Concerning the applicant's claimed pH range, as the instant example meets the material limitations of the claim such properties as pH would be inherent to this composition.

9. Concerning the applicant's claimed surface tension and viscosity, as the instant example meets the material limitations of the claim such properties as surface tension and viscosity would be inherent to this composition.

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10. Concerning the applicant's claim to the ammonium salt of a carboxylic acid. Such salts would be inherent to the compositions of Torii et al because this composition contains both an ammonium compound and a carboxylic acid. As such the ammonium ion would freely associate itself with the carboxylic acid forming ammonium salts of the carboxylic acid.

11. Since this reference teaches all material limitations of the claims at hand, the reference is anticipatory.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to

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the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Torii et al (US 5,972,862) in view of Ward et al (US 5,571,447).

15. Torii et al teach compositions for cleaning semiconductor surfaces. In example 4, Torii et al teach composition containing 10 weight percent ammonium fluoride (fluoride compound and buffering agent), 0.1 weight percent acetic acid (acid), and 45 weight percent dimethyl formamide (organic solvent). Noting that this composition is free of glycols (see col. 12, lines 50-65). Torii et al further teach the use of these compositions for cleaning residue from a substrate at a temperature of 23°C (see col. 12, lines 8-18). The results of these experiments demonstrate this time to be sufficient for complete removal of the residue (see col. 13, lines 1-28).

16. Ward et al teach the use of fluoroboric acid in stripping compositions in amounts from 0.5 to 10 weight percent and further teach that the fluoroboric acid maintains a stable fluoride ion source with ammonium fluoride or other fluoride salts and provides a low pH (see col. 3, lines 7-11). Ward et al further teach the use of corrosion inhibitors in their compositions and their use up to 15 weight percent of the composition (see col. 3, lines 34-40). Ward et al further teach preferred inhibitor as gallic acid (see col. 4, lines 3-5).

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17. Torii et al fail to demonstrate in example 4 the following: the use of formamide (as per claim 4), the pH of the composition, the use of a corrosion inhibitor (as per claims 2, 6, 7), the surface tension and viscosity (as per claim 11), the acidic buffer (as per claim 8), the fluoboric acid (as per claim 9).

18. Although Torii et al fail to teach the use of fluoroboric acid, Ward et al provides motivation for the inclusion of this compound especially when used with the ammonium fluoride compositions as taught by Torii et al by stating that fluoroboric acid maintains a stable fluoride ion source. Therefore, it would have been obvious to have included in the compositions of Torii et al the fluoroboric acid of Ward et al because Ward et al generally teach that such compounds will maintain the fluoride ion content of the solution.

19. Although Torii et al fail to teach the use of corrosion inhibitors, Ward et al generally teach the use of corrosion inhibitors and teach a preferred inhibitor to be gallic acid. Therefore it would have been obvious to have included in the compositions of Torii et al the gallic acid because Ward et al generally teach this to be a preferred corrosion inhibitor.

20. Although Torii et al fail to teach the pH of their compositions, as the instant example meets the material limitations of the claim such properties as pH would be inherent to this composition and would therefore be an obvious inherent property of the compositions of Torii et al.

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21. Although Torii et al fail to teach the surface tension and viscosity, as the instant example meets the material limitations of the claim such properties as surface tension and viscosity would be inherent to this composition.

22. Although Torii et al fail to teach the ammonium salt of a carboxylic acid. Such salts would be inherent to the compositions of Torii et al because this composition contains both an ammonium compound and a carboxylic acid. As such the ammonium ion would freely associate itself with the carboxylic acid forming ammonium salts of the carboxylic acid.

23. Although Torii et al fail to demonstrate in example 4 the use of formamide, Torii et al generally teach the use of both dimethyl formamide and formamide as a suitable organic solvent. Therefore, it would have been obvious to have substituted for the dimethyl formamide of example 4 the formamide as per example 2 as both composition are for the same intended use.

Allowable Subject Matter

24. It is suggested that the applicant limit the current compositional claims to specific ingredients and weight percentages to overcome the prior art of record.

Conclusion

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. These references are considered cumulative to or less material than those discussed above.

26. Applicant is reminded that any evidence to be presented in accordance with 37 C.F.R. § 1.131 or 1.132 should be presented prior to final rejection in order to be considered timely. Any

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inquiry concerning this communication should be directed to Greg Webb at (703)305-4945. The examiner can normally be reached between about 9:00 AM and about 4:00 PM, E.S.T., Monday through Fridays. If *reasonable* attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta, can be reached at (703)308-4708. The fax number for this Group is (703)305-3599. Any inquiry of a general nature or relating to the status of the application should be directed to the Group receptionist at (703)308-0661.


YOGENDRA GUPTA
SUPERVISORY PATENT EXAMINER

g.w.

February 29, 2000